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IS 3171-1 (1997): Internal Combustion Engines - Fuel Injection Nozzle Holders, Part 1: Flange Mounted Fuel Injectors Size 'S' Types 2, 3, 4, 5 and 6 [TED 2: Automotive Primemovers]

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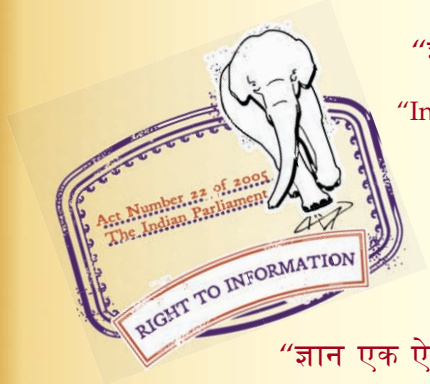

"ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है"
Bhartṛhari—Nītiśatakam
"Knowledge is such a treasure which cannot be stolen"

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IS 3171 (Part 1) : 1997
ISO 2699 : 1994

भारतीय मानक

(Reaffirmed 2002)

अंतर्दाही इंजन – ईंधन अंतःक्षेपण प्रणाली

भाग 1 फ्लैंज चढ़ा ईंधन अंतःक्षेपण साइज 'एस' टाइप 2, 3, 4, 5 तथा 6

(पहला पुनरीक्षण)

Indian Standard

INTERNAL COMBUSTION ENGINES — FUEL INJECTION NOZZLE HOLDERS

PART 1 FLANGE MOUNTED FUEL INJECTORS SIZE 'S' TYPES 2, 3, 4, 5 and 6

(First Revision)

ISO Title : Diesel Engines — Flange Mounted Fuel Injectors, Size 'S' — Types 2, 3, 4, 5 and 6

ICS 43.060.40

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

January 1997

Price Group 2

NATIONAL FOREWORD

This Indian Standard (Part 1)(First Revision), which is identical with ISO 2699 - 1986 "Diesel engines — Flange mounted fuel injectors Size 'S'— Types 2, 3, 4, 5 and 6", issued by the International Organization for Standardization (ISO), was adopted by the Bureau of Indian Standards on the recommendations of the Automotive Primemovers Sectional Committee and had been approved by the Transport Engineering Division Council.

The text of the ISO standard has been approved as suitable for publication as Indian Standard without deviations. Certain conventions are, however, not identical to those used in Indian Standards. Attention is particularly drawn to the following:

a) Wherever the words 'International Standard' appear, referring to this standard, they should be read as 'Indian Standard'.

b) Comma (,) has been used as a decimal marker while in Indian Standard, the current practice is to use a point (.) as the decimal marker.

The sectional committee decided to align the Indian standards with the corresponding International Standards wherever feasible and wherever the domestic considerations were not so intense as to have standards different from the ISO Standards. This decision was taken with a view to upgrade the quality of the products in line with the International Standards.

In view of the emerging technological developments in the diesel engine manufacturing industry in our country and also with the growing concern over the acceptability of the engines and their components in the international market, a need was felt to upgrade the contents of the standard relevant to this fuel injection field that has a bearing on the quality of the engines to the international level. The adoption of international standards by dual numbering system was considered as appropriate for the purpose and accordingly the corresponding international standards have been brought under the dual numbering system.

This Indian Standard now Part 1 was first published in 1965. The revision of the standard has been undertaken to bring it in line with dimensional requirements for certain category of injection nozzle holders used in diesel engines and their interchangeability in the corresponding nozzles followed internationally. During the revision the committee had examined and considered the other international standards relevant to the subject and agreed to bring them as parts of the standard to make them more useful for the industry.

The standard is one in the series of standards on fuel injection nozzle holders. Other standards published in the series are :

IS 3171 (Part 2) : 1996/ ISO 7026 : 1990	Internal Combustion Engines — Fuel Injection Nozzle Holders — Part 2 Screwin Injection Nozzle Holders Types 20, 21 and 27 for Pintle Nozzle Size 'S' Type B
IS 3171 (Part 3) : 1996/ ISO 7030 : 1987	Internal Combustion Engines — Fuel Injection Nozzle Holders — Part 3 Screw Mounted Injection Nozzle Holders Types 12, 13, 14,15, 16, 17, 18 and 19

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

INTERNAL COMBUSTION ENGINES — FUEL INJECTION NOZZLE HOLDERS

PART 1 FLANGE MOUNTED FUEL INJECTORS SIZE 'S'

TYPES 2, 3, 4, 5 and 6

(First Revision)

1 Scope

This International Standard specifies dimensions necessary for the mounting and interchangeability of flange-mounted fuel injectors of size "S", types 2, 3, 4, 5 and 6, containing the nozzles specified in ISO 2697, for diesel (compression-ignition) engines.

The location of the fuel inlet and leak-off connections are not defined since they vary according to the particular application.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 2692:1988, *Technical drawings — Geometrical tolerancing — Maximum material principle.*

ISO 2697:1974, *Road vehicles — Fuel injection nozzles — Size "S".*

3 Dimensions and tolerances

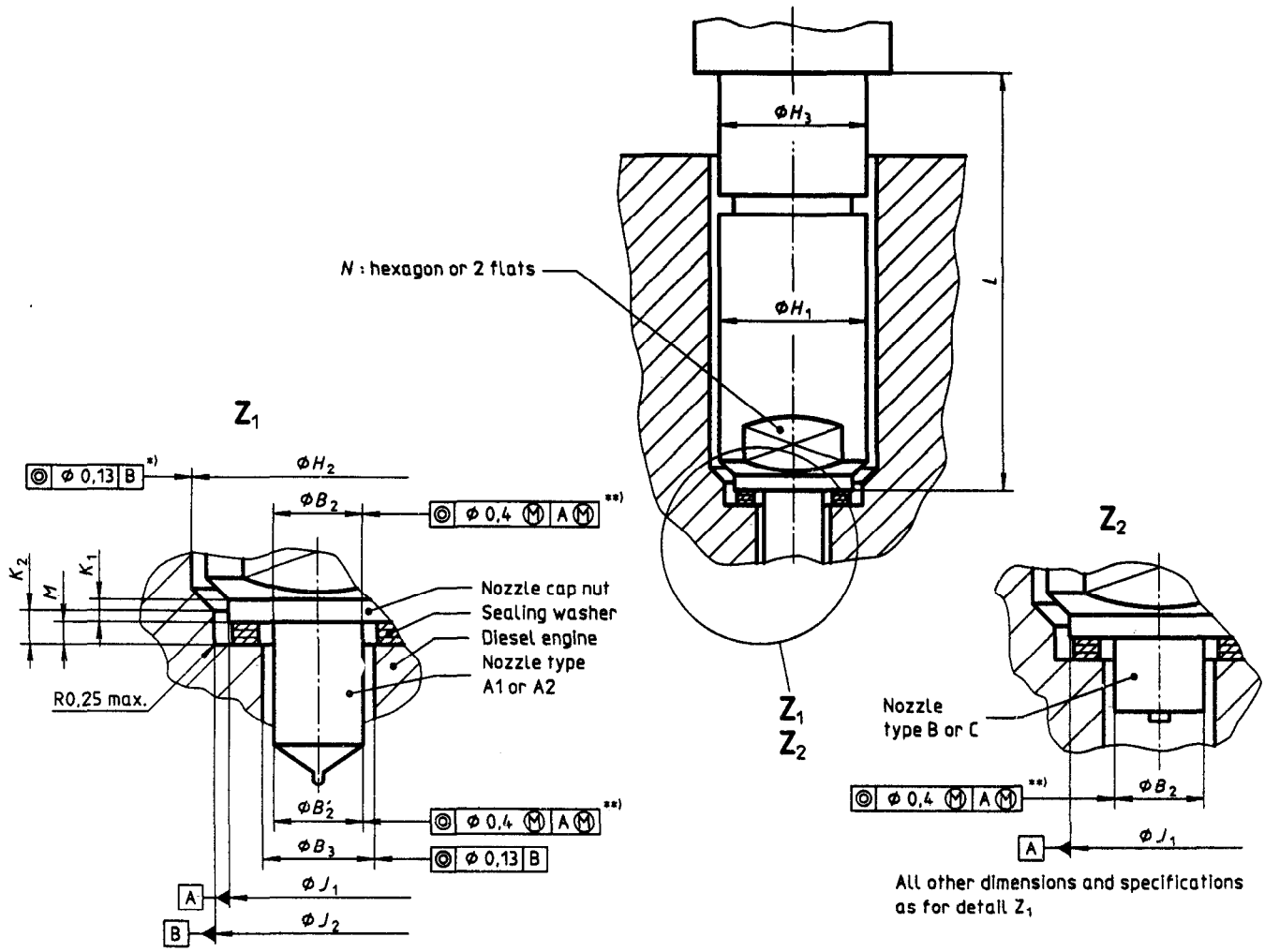
General dimensions of injectors shall be as given in figures 1 to 3. The preferred shank lengths (dimension *L*) are given in table 1.

Table 1

Dimensions in millimetres

Injector type	Nozzle type	$L \pm 0,8$				
2	A1 or A2	52	67	—	97	112
	B or C	35	45,5	50	80	95
3 and 5	A1 or A2	52	67	82	97	112
4 and 6	B or C	35	50	65	80	95

Dimensions in millimetres



*) This tolerance applies only in the case where a small clearance exists between H_1 and H_2.

**) See footnote 2) in the table and ISO 2692.

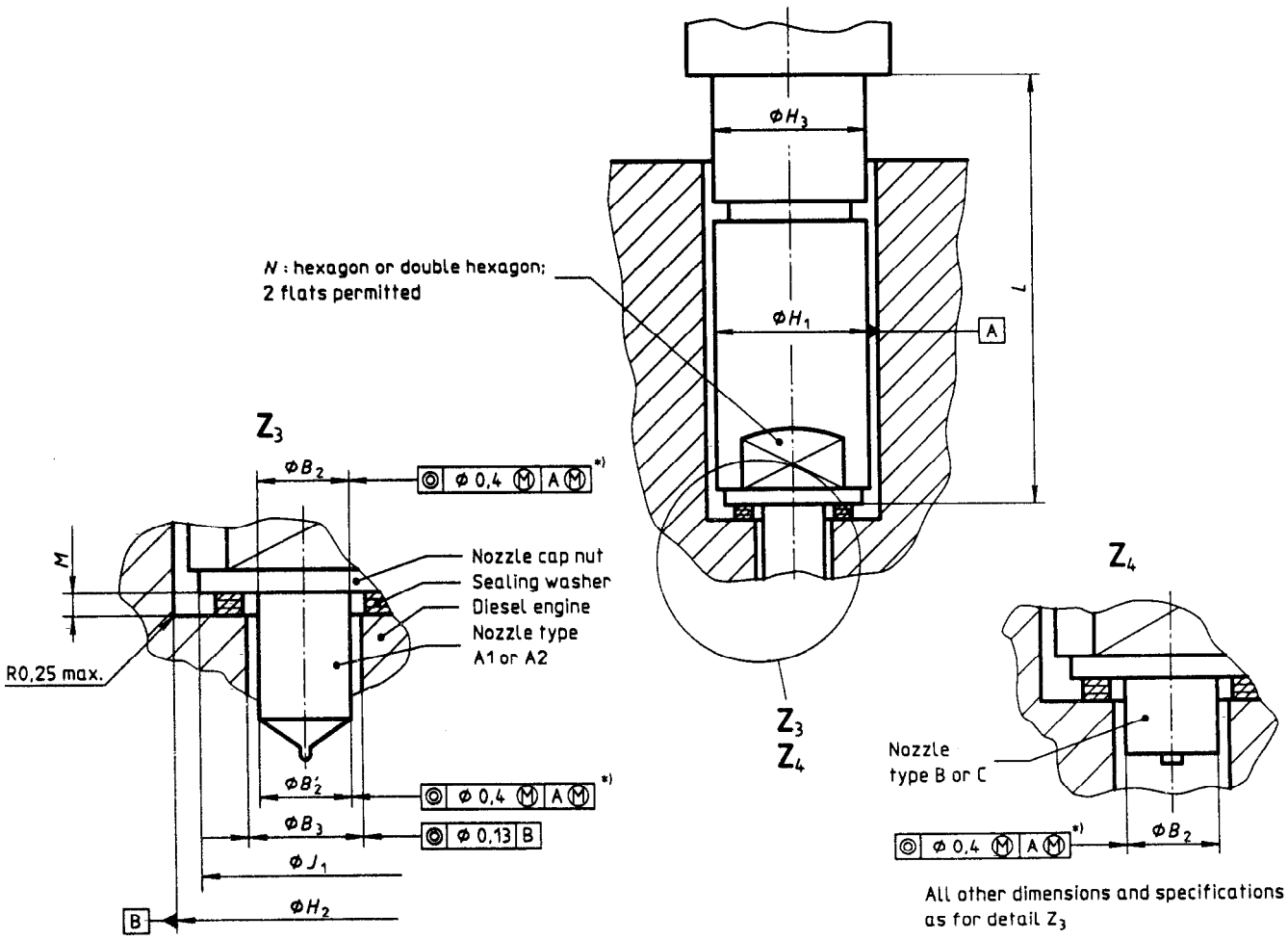
Injector type	Nozzle type	H_1 max.	H_2 min.	H_3 max.	B_2	B'_2 $^{+0,3}_{0}$	B_3	J_1 h11	J_2 C11	K_1 min.	K_2 $^{+1}_{0}$	M [1] nom.	N across flats h11
2	A1 or A2	25	25,2	25	9,2 max. ($B_2 \geqslant B'_2$)	8,9	2)	21,5	21,5	3,5	3,5	2	22
	B or C				14 c11	—							

1) With commercial tolerances (before compression).

2) The determination of the diameter B_3 in the cylinder head is left to the manufacturer's choice. For this purpose the maximum value for the nozzle stem which is given as a result of the maximum material principle and the maximum tolerance value of the cylinder head hole shall be taken into account. The clearance shall be kept to a minimum to facilitate nozzle cooling.

Figure 1 — Flange-mounted injector size "S", type 2

Dimensions in millimetres



*) See footnote 2) in the table and ISO 2692.

Injector type	Nozzle type	H_1 max.	H_2 $^{+0,1}_{0}$	H_3 max.	B_2	B'_2 $^{+0,3}_{0}$	B_3	J_1 min.	M [1] nom.	N across flats h11
3	A1 or A2	21,5	21,6	21,3	9,2 max. ($B_2 \geq B'_2$)	8,9	2)	18,5	2	19
4	B or C				14 c11	—				

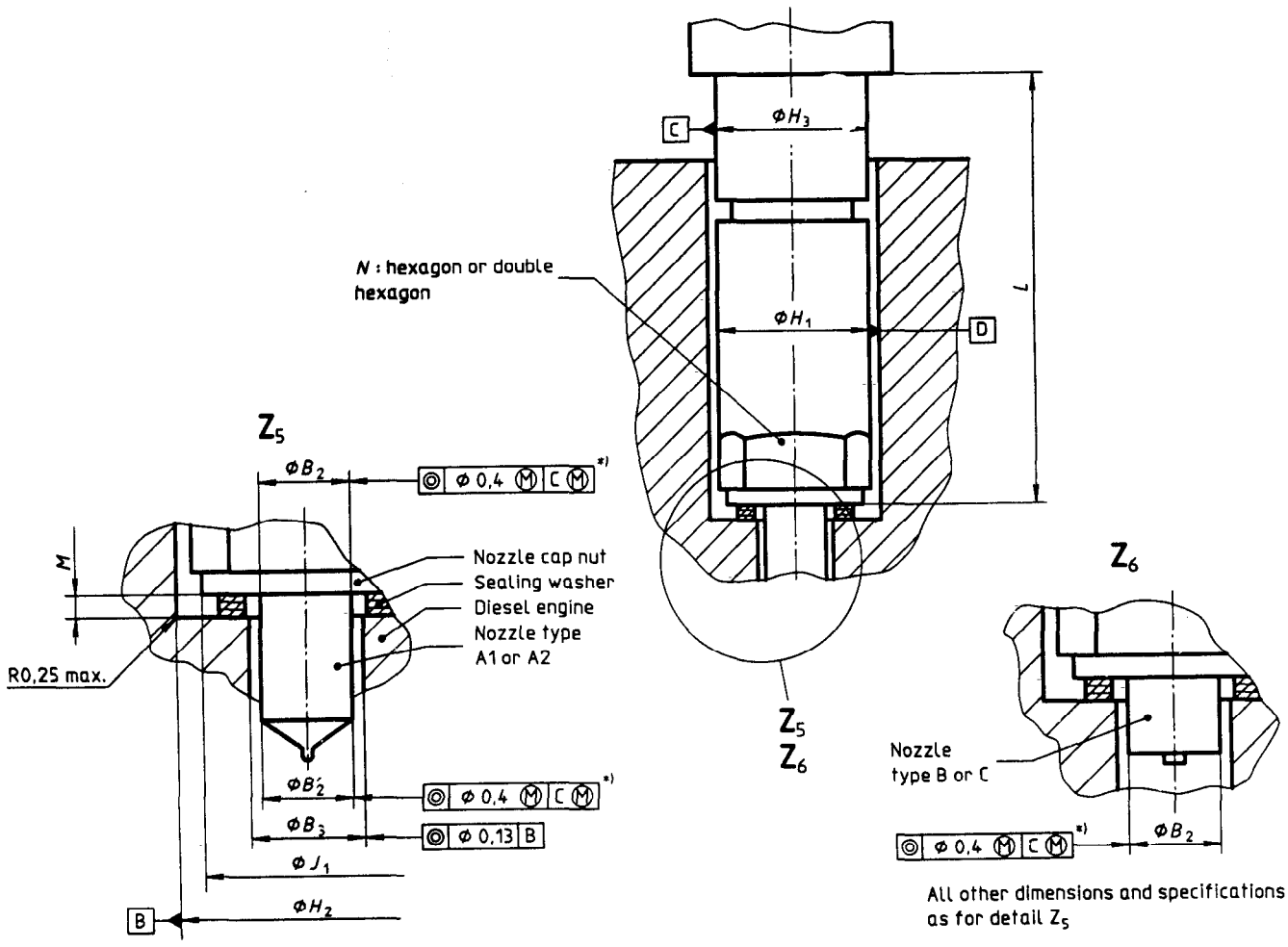
NOTE — Injectors types 3 and 4 are not recommended for future designs.

1) With commercial tolerances (before compression).

2) The determination of the diameter B_3 in the cylinder head is left to the manufacturer's choice. For this purpose the maximum value for the nozzle stem which is given as a result of the maximum material principle and the maximum tolerance value of the cylinder head hole shall be taken into account. The clearance shall be kept to a minimum to facilitate nozzle cooling.

Figure 2 — Flange-mounted injectors size "S", types 3 and 4

Dimensions in millimetres



*) See footnotes 1) and 3) in the table and ISO 2692.

Injector type	Nozzle type	H_1 max.	H_2 1) $^{+0,1}_{0}$	H_3 max.	B_2	B'_2 $^{+0,3}_{0}$	B_3	J_1 min.	M 2) nom.	N across flats h11
5	A1 or A2	20,9	21,1	21	9,2 max. ($B_2 \geqslant B'_2$)	8,9	3)	18,5	2	19
6	B or C				14 c11	—				

1) For types 5 and 6 injectors without shanks, dimension H_2 shall be reduced by 0,1 mm. In this case concentricity tolerances apply, under the same conditions, to reference D instead of reference C.

2) With commercial tolerances (before compression).

3) The determination of the diameter B_3 in the cylinder head is left to the manufacturer's choice. For this purpose the maximum value for the nozzle stem which is given as a result of the maximum material principle and the maximum tolerance value of the cylinder head hole shall be taken into account. The clearance shall be kept to a minimum to facilitate nozzle cooling.

Figure 3 — Flange-mounted injectors size "S", types 5 and 6

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Amendments Issued Since Publication

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